

IARPA

BROAD AGENCY ANNOUNCEMENT

IARPA-BAA-11-12



Great Horned Owl (GHO)



Office of Smart Collection

IARPA-BAA-11-12

Release Date: October 5, 2011

IARPA

BROAD AGENCY ANNOUNCEMENT: IARPA-BAA-11-12

GHO

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PART ONE: OVERVIEW INFORMATION

This publication constitutes a BAA and sets forth research areas of interest in the area of quiet, low altitude Unmanned Air Vehicles (UAVs.) Awards based on responses to this BAA are considered to be the result of full and open competition.

- **Federal Agency Name** – Intelligence Advanced Research Projects Activity (IARPA), Smart Collection Office
- **Funding Opportunity Title** – GHO Program
- **Announcement Type** – Initial
- **Funding Opportunity Number** – IARPA-BAA-11-12
- **Catalog of Federal Domestic Assistance Numbers (CFDA)** – 12.910 Research and Technology Development
- **Dates:**
 - Posting Date: October 5, 2011
 - First round proposals due: 5:00 p.m., Eastern Standard Time (EST), November 22, 2011
 - BAA closing date: October 5, 2012
- **Anticipated individual awards** – Multiple awards are anticipated.
- **Types of instruments that may be awarded** – Procurement contract.
- **Agency Points of contact**

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- **Program website:** http://www.iarpa.gov/solicitation_gho.html
- **BAA Summary:** The GHO Program BAA seeks to enable quieter UAVs through innovations in a low sound level propulsion system composed of fuel-to-electricity and electricity-to-thrust subsystems.
- **Questions:** IARPA will accept questions about the first round of the BAA until November 4, 2011. A consolidated Question and Answer response will be publicly posted every few days on the IARPA website http://www.iarpa.gov/solicitation_gho.html; no answers will go directly to the submitter. Questions about administrative, technical or contractual issues must be submitted to the BAA e-mail address at dni-iarpa-baa-11-12@ugov.gov. If e-mail is not available, fax questions to 301-851-7673, Attention: IARPA-BAA-11-12. All requests must include the name, e-mail address and phone number of a point of contact for the requested information. Do not send questions with proprietary content.

PART TWO: FULL TEXT OF ANNOUNCEMENT

Section 1: FUNDING OPPORTUNITY DESCRIPTION

The Intelligence Advanced Research Projects Activity (IARPA) often selects its research efforts through the BAA process. The BAA will appear first on the FedBizOpps website, <http://www.fedbizopps.gov/>, then the IARPA website at <http://www.iarpa.gov>. The following information is for those wishing to respond to this Program BAA.

IARPA is seeking innovative solutions for the Great Horned Owl (GHO) Program. The use of a BAA solicitation allows a wide range of innovative ideas and concepts. The program is anticipated to be divided into three phases. Phase 1 will last for a period of 15 months. Only Phase 1 is solicited under this BAA. Phase 1 is focused on technology exploration and subsystem development for the propulsion system. Phases 2 and 3 are anticipated to be covered in a separate solicitation. Phase 2 is expected to consist of air vehicle system concept development, system integration, and ground testing. Phase 3 is anticipated to be system validation and flight demonstration. The Program is envisioned to begin February 2012 and end by June 2016.

The Intelligence Surveillance and Reconnaissance (ISR) role for UAVs is dependent upon the ability of the UAV to do its mission without the adversary being able to counter it. For many such ISR applications, the acoustic signature of the UAV alerts the adversary to the UAV's presence and can interfere with the mission. Battery powered UAVs are very quiet but lack endurance and payload capability. Better, more efficient, quiet power sources and propulsion techniques are needed to build next generation UAVs for ISR mission applications.

The GHO Program seeks to develop technologies that significantly extend the operational endurance and payload capabilities of ISR UAVs. The anticipated innovation in this first phase of the program is a propulsion system that will quietly generate electrical power from liquid hydrocarbon fuel (specifically gasoline or diesel) and enable purely electrically driven silent flight. The specific propulsion subsystems that this BAA is interested in funding are fuel-to-electricity devices using an advanced combustion engine directly coupled to alternator/generator concepts and electricity-to-thrust devices utilizing innovative electric motor driven propulsor systems.

1.A. Program Overview

The Office of Smart Collection envisions the potential development of future highly capable UAVs designed to provide dramatic improvements in ISR mission operations/applications. The intent of this Phase 1 BAA solicitation is to identify and define the enabling technologies necessary to design a very efficient, hydrocarbon fueled, modular hybrid propulsion system for small UAVs envisioned for ISR missions.

All aircraft in flight produce sound in the audible range. There are several sources of sound, including the engine, propeller blades, and airflow over the wings, fuselage, and control surfaces. This phase of the GHO program will concentrate on the primary sound sources of power production (fuel-to-electricity) and the propulsor (electricity-to-thrust), which will be treated as distinct subsystems. Mechanically decoupling these functions with an all electric approach will eliminate the gearbox required for a direct drive system.

The notional configuration of the propulsion system includes a power production (fuel-to-electricity) subsystem which supplies power to an electric motor propulsion (electricity-to-thrust) subsystem. Any excess power will be stored in a battery for a variety of

auxiliary functions. Direct mechanical coupling between the power production subsystem and the propulsor is not allowed.

This BAA solicits research, technologies, and concepts that will provide the power production subsystem (described in 1.A.1) and the thrust producing propulsion subsystem (described in 1.A.2). Each subsystem must also meet the acoustic signature requirements described in 1.A.3. **Offerors may propose to either the power production or thrust producing propulsion subsystems. However, a single proposal must not address more than one subsystem. If an offeror wants to propose against more than one subsystem, separate proposals must be submitted.** Subject to the availability of funds and successful progress toward the overarching goals of the GHO Program, proposals for subsequent phase(s) will be solicited under a future solicitation that is expected to be released at the end of Phase 1.

1.A.1 Power Production: “fuel-to-electricity”

Electric motors powered by batteries are typically very quiet but the energy density of batteries limits the payload and duration of flight. Gasoline-burning piston engines are common in many small UAVs but they provide an impulsive mid-frequency sound that requires a large muffler to control the sound energy. Small internal combustion engines needed for small UAVs generally have high rotational speeds (rpm) that require a gearbox to match the output shaft speed to the input rpm required by the propeller. Unfortunately, gearboxes are an additional source of multi-frequency broadband sound and also increase overall weight. Although combustion engines have reasonable energy conversion efficiency at their design point/constant speed condition (stated as specific fuel consumption (SFC)), historically, most engines have been connected directly to a propeller, and the thrust output has been controlled by throttling the combustion engine with commensurate penalties in SFC.

In case there is a need for operating more quietly than the combustion engine power subsystem will allow, the system may run for short periods on battery power alone. Therefore the GHO fuel-to-electricity subsystem must be able to restart in flight after up to a 30 minute stoppage.

The GHO program is seeking proposals that address quietly operating turbo-alternators, motor-generators, and/or other innovative combustion engine systems to utilize the stored energy in automotive grade fuel to generate electricity. The fuel-to-electricity subsystem metrics for the end of phase 1 are listed in Table 1. These subsystems will be delivered to the Program and evaluated based upon the weight of the device, the electrical power produced, the fuel consumed to produce that power, the sound generated by the device in operation (see Section 1.A.3), and the ability to restart the power producing device after being shut down for up to 30 minutes. The subsystem weight includes everything needed to produce power including the combustion engine, the generator/alternator, the pumps, lubrication fluid, cooling liquid, mounting brackets, a simple fuel tank capable of holding 3 hours of fuel, and anything else the proposed design requires. Since cost and logistical support of the eventual UAV system are factors, common automotive grade fuels such as gasoline and/or diesel shall be used. Offerors should also keep in mind that ultimately, the UAV will need to operate in a variety of weather conditions, including rain, sleet, and snow.

1.A.2 Thrust Production: “electricity-to-thrust”

Phase 1 of the GHO program will include design, development, and measurement of propulsor systems. Note that for this program, the term propulsor means a device that converts electrical power into thrust for flight. Phase 1 metrics for the propulsor are given in Table 2, and include the weight of the subsystem, electrical power consumed by the system, the thrust generated, and the sound produced by the system in operation (see Section 1.A.3). The subsystem weight includes everything needed to produce thrust and includes the electric motor, the propeller, and the nacelle, any vanes, bearings, pumps, lubrications, cooling liquid, etc. The electrical power consumption will be measured while the propulsor is producing thrust in a wind tunnel at ambient airspeeds from 0 to 100 knots and at various power settings.

1.A.3 Sound Metrics

Sound is a major metric in evaluating the success of the subsystem technologies and the program overall. The program goal is to provide a vehicle that can fly over a spot without being heard from the ground; therefore, direction, magnitude, and transmissivity of radiated sound are all important. To verify performance, the Program will conduct sound measurements of both subsystems at multiple angles in azimuth and elevation. The total run time for the testing of each subsystem will be on the order of 10 hours.

Offerors must propose a cost-effective acoustic prediction and measurement approach to assess the performance of the proposed subsystem. The proposal must describe and justify the methods proposed to predict and/or model the sound performance of their subsystem. The sound prediction and modeling methods must be able to predict the source sound pressure levels due to the physical phenomena of the system (such as number of blades, interaction with struts, tip effects, etc.). Also, proposals must describe and justify acoustic testing they will perform on their physical prototype prior to the final government acoustic testing.

The fuel-to-electricity subsystem will be tested by the Program in an acoustic anechoic chamber. Since the combustion exhaust will be a major source of sound energy, proposals must address how the sound due to the exhaust will be managed.

The measurement process for the propulsor (electricity-to-thrust subsystem) is more involved since the maximum sound level at forward flight speeds (up to 100 knots) is the critical measurement. These measurements will be conducted in an acoustic wind tunnel by the Program. However, offerors must address how they will predict and measure the sound generated by the propulsor across the airspeed range (zero to 100 knots) and power setting (idle to maximum), both for their own testing as well as any conditions that may affect how testing will be performed by the Government.

Acoustic sound pressure levels (SPL) radiating from the subsystem test article will be recorded from multiple azimuth and elevation angles. The recordings will be analyzed with a 1/3 octave band spectrum analyzer with ANSI compliant one-third octave band filters over the range 10 Hz - 20 kHz, although peak SPL will be monitored at all frequencies under 100 kHz. Recordings will be made for each of the subsystems at all power settings and operating conditions, including transients such as start-up and shutdown. All sound measurements will be normalized to 59 degrees Fahrenheit and 70% humidity using standard SAE Air Absorption Coefficients from the measured condition. Sound measurements should be below the 60 phon curve (see Figure 1) for

frequencies between 10 Hz and 20 kHz with no SPL above 100 dB for all frequencies below 100 kHz.

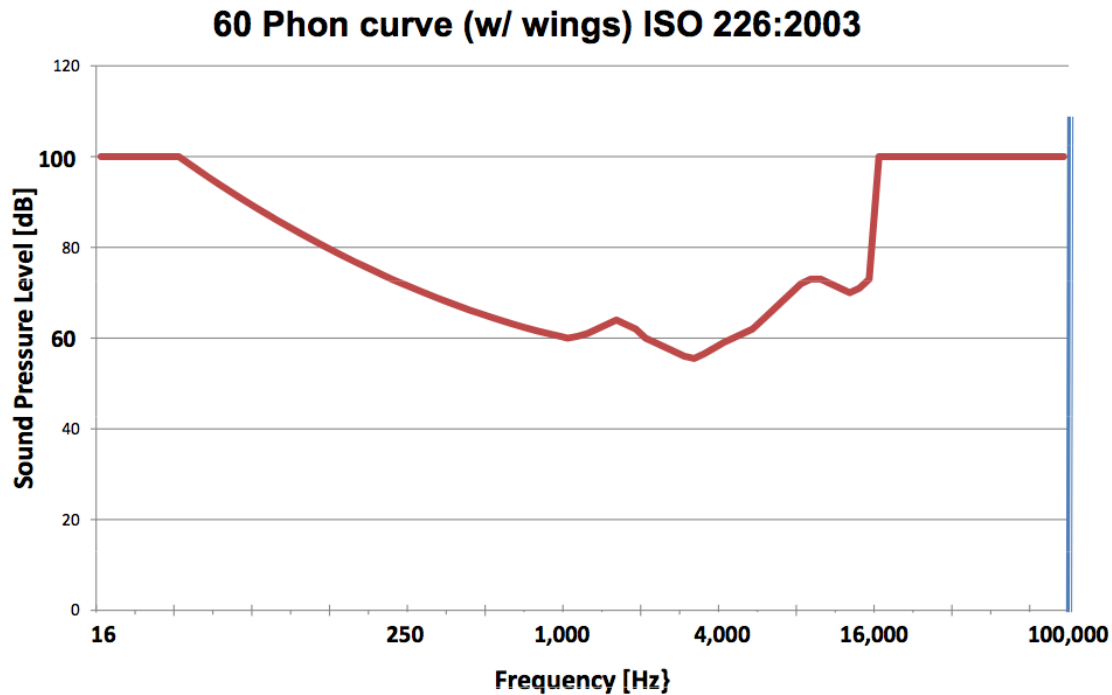


Figure 1 Phon curves with additional limits for all frequencies under 100 kHz (derived from ISO 226:2003)

1.A.4 Topics not in Scope

The IARPA GHO Program is not interested in proposals for improvements in batteries, fuel cells, solar powered generators, or gearbox technology.

1.B. Program Milestones and Metrics

Each subsystem approach will have unique characteristics so the proposal must explain the development plan, test plan, and risk mitigation approach for the critical components that make up the subsystem. The Program will use the following milestones and metrics to evaluate the effectiveness of proposed solutions in achieving the stated program objectives, and to determine whether satisfactory progress is being made to warrant continued funding of the program. These metrics are intended to bound the scope of effort, while affording maximum flexibility, creativity, and innovation in proposing solutions to the stated problem. Offerors must propose how they will use prediction and/or modeling tools to assess expected performance against the figures of merit in the following tables. The offerors must also identify how they will conduct performance testing along with a cost-effective acoustic measurement approach that provides meaningful results useful in assessing the overall performance in advance of government testing.

Table 1 provides the metrics for the power production “fuel-to-electricity” subsystem, along with the sound metrics for the subsystem. Table 2 provides the metrics for the

propulsor “electricity-to-thrust” subsystem along with the sound metrics for the subsystem.

Table 1: Phase 1 Metrics for “fuel-to-electricity” Subsystem

Figure of Merit	Phase 1 Metric	Integrated System Goal (Phases 2 & 3)	Other information
Weight	11 lbs	11 lbs	Includes everything needed to produce power (i.e. pumps, lubrication fluid, cooling liquid, mounting brackets, fuel tank, etc.).
Power Loading	> 0.4 kW/lb	>0.6 kW/lb	Measured when run on a test stand.
Power Produced	>4 kW @ 100v	>6 kW @ 100v	At steady state “continuous” power condition.
Fuel Consumption	< 1 lb/kWh	< 0.8 lb/kWh	Measured fuel flow in pounds/hour over electrical power output in kilo-Watts.
Sound Goal	<60 phon curve	<50 phon curve	For Phase 1, no emission should exceed the 60 phon curve (relative to ISO 226:2003), or 100 dB SPL at any frequency up to 100 kHz, measured at 10 meters from the device.
Cold Restart	Up to 30 min.	after shutdown	Allows for battery-only operation

Table 2: Phase 1 Metrics for Propulsor Subsystem

Figure of Merit	Phase 1 Metric	Integrated System Goal (Phases 2 & 3)	Other information
Total Weight	< 5 lb	< 4 lb	Requirement is weight of propulsor including all structure and sound treatments
Input Power	< 2 kW	< 2 kW	At airspeed up to 100 knots and rated output thrust.
Output Thrust	> 9 lbf	> 12 lbf	At airspeed up to 100 knots
Thrust to Weight (T/W)	> 2.0	> 3.0	Measured T/W of the propulsor. (Note: English units lbf/lb.)
Power Consumption	< 0.3 kW/lbf	< 0.2 kW/lbf	Measured electrical power consumed over thrust produced
Sound Goal	<60 phon curve	<50 phon curve	For Phase 1, no emission should exceed the 60 phon curve (relative to ISO 226:2003), or 100 dB SPL at any frequency up to 100 kHz, measured at 10 meters from the device.

In order to increase the likelihood that the milestones will be met, the Program Manager will use waypoints shown in Table 3. The intent of these waypoints is to provide a measure of progress toward meeting the program milestones so that the Program Manager and program advisors can provide more effective guidance and assistance to performers. The Program Manager and advisors will use waypoints to assess whether the program as a whole is on the right path or whether course correction is needed to ensure program success.

In addition to the waypoints in Table 3, Offerors must identify additional quarterly waypoints that will provide the Government with insight into the progress of their specific subsystem approach. Proposals must include a rationale, definition, metrics, and an evaluation plan for each waypoint. Waypoints must provide a clear measure of progress toward meeting the Phase 1 metrics in Tables 1 and 2. Offerors shall identify the key technical risk items of their particular concept in achieving the Phase 1 metrics, and define waypoints that will enable quantitative assessment of progress in addressing those risks. Quantitative goals for critical subsystem components should be included in the proposed waypoints. Offeror proposed waypoints for month 9 must specifically show quantitative progress towards the Phase 1 figures of merit. The intent of the waypoints is not to overly constrain the activities and inhibit innovation but to provide guidance and help focus the proposal efforts.

Table 3: Milestones/Waypoints

Date	Milestone/Waypoint	Metric/Demonstration
Phase 1 (15 months)		
Completed by 3 rd Month after ATP (authorization to proceed)	<ul style="list-style-type: none"> Design review 	<ul style="list-style-type: none"> Show component and subsystem design approaches (detailed design review) Provide expected performance and predictions of sound performance with theoretical and/or modeled justification Assess progress against performer-defined waypoint(s)
Completed by 6 th Month after ATP	<ul style="list-style-type: none"> Initial component tests 	<ul style="list-style-type: none"> Finish fabrication of key components Review performer subsystem component test results (Performer-specified waypoint(s))
Completed by 9 th Month after ATP	<ul style="list-style-type: none"> Component performance testing (conducted by performer) 	<ul style="list-style-type: none"> Demonstrate performance against quantitative offeror-proposed waypoints towards meeting the Phase 1 figures of merit
Completed by 12 th Month after ATP	<ul style="list-style-type: none"> Subsystem testing (conducted by performer) 	<ul style="list-style-type: none"> Demonstrate performance against GH0 Program metrics Performer power testing for fuel-to-electricity subsystem Performer thrust testing of propulsor subsystem
Completed by 15 th Month after ATP	<ul style="list-style-type: none"> Final subsystem testing (conducted by the Government) 	<ul style="list-style-type: none"> Acoustic testing (both systems) Power testing for fuel-to-electricity subsystem Thrust testing for propulsor subsystem

1.C. Program Timeline

Table 4 shows the overall program schedule. This BAA only addresses phase 1; later phases will be covered by a separate solicitation.

Table 4: Overall Program Phases

Phase Period	Purpose	Goal
Phase 1 (15 months)	Enabling Technology	Power production subsystem and Thrust generation subsystem
Phase 2 (24 months)	System Integration	System development and ground test
Phase 3 (9 months)	Flight Test	Full system flight test and mission demonstration

Table 5: Detailed Phase 1 Timeline

Date	Event	Description
1 st Month after ATP	Kick-off meeting	<ul style="list-style-type: none"> • PI's & Key Personnel from each subsystem team participate.
3 rd Month after ATP	Quarterly Review/Site Visit	<ul style="list-style-type: none"> • Quarterly report due • Design review and progress against waypoints are discussed and evaluated.
6 th Month after ATP	2 nd Quarterly Review/TIM (at location in DC area)	<ul style="list-style-type: none"> • Conduct Technical Interchange Meeting (TIM) with open discussion of technical progress, issues, and problems associated with each contractor team. • Discuss and review each contractor's progress and hardware fabrication • Quarterly report due
9 th Month after ATP	3 rd Quarterly Review/Site Visits	<ul style="list-style-type: none"> • Assess progress against quantitative offeror-proposed waypoints. • Quarterly report due
12 th Month after ATP	Conduct 2 nd TIM (Location TBD)	<ul style="list-style-type: none"> • Conduct second TIM with open discussion of technical progress, issues, and problems associated with the subject subsystems. • PM provides final acoustic test plan and access schedule to Government Furnished Facilities (GFF) for acoustic verification testing. • PM and SME's discuss and review each contractors progress to completion of the subsystem test article. • Quarterly report and all Documentation due
Months 13-14 (driven by test facility schedule)	Acoustic tests of each subsystem	<ul style="list-style-type: none"> • Contractor will deliver subsystem to Government facility for testing. • Contractor will be available to provide operational support to facility test personnel and may witness acoustic testing of its subsystem.
15 th Month after ATP	Final Quarterly Review/ Site Visits	<ul style="list-style-type: none"> • PM & SME's receive final briefing from each contractor w/ discussion of data to be included in the Final Report • Deliver prototype to the government • Assure delivery of all contractual documentation, reports, and close-out of Action item list.

SECTION 2: AWARD INFORMATION

The IARPA GH0 Program is envisioned as a 48-month effort that is intended to begin February 2012. Phase 1 of the Program will last 15 months. Costs associated with the commercialization of technology are not covered under this solicitation. It is expected that external investment or company funds will be leveraged to accomplish final commercialization of technology.

This BAA will result in awards for Phase 1 only. Subject to the availability of funds and successful progress toward the overarching goals of the GH0 Program, proposals for subsequent phase(s) will be solicited under a future solicitation that is expected to be released before the conclusion of Phase 1.

Multiple Phase 1 awards are anticipated. The amount of resources made available under this BAA will depend on the quality of the proposals received and the availability of funds.

The Government reserves the right to select for negotiation all, some, one or none of the proposals received in response to this solicitation and to make awards without discussions with offerors. The Government also reserves the right to conduct discussions if the Source Selection Authority determines them to be necessary. If the proposed effort is inherently divisible and nothing is gained from the aggregation, offerors should consider submitting it as multiple independent efforts. Additionally, IARPA reserves the right to accept proposals in their entirety or to select only portions of proposals for negotiations for award. In the event that IARPA desires to award only portions of a proposal, negotiations may be opened with that offeror.

Awards under this BAA will be made to offerors on the basis of the evaluation criteria listed in 5.A, program balance, and availability of funds. Proposals identified for negotiation may result in a procurement contract. However, the Government reserves the right to negotiate the type of award instrument it determines appropriate under the circumstances.

Offerors whose proposals are accepted for funding will be contacted before award to obtain additional information required for award. The Government may establish a deadline for the close of fact-finding and negotiations that allows a reasonable time for the award of a contract. Offerors that are not responsive to government deadlines established and communicated with the request may be removed from award consideration. Offerors may also be removed from award consideration should the parties fail to reach agreement on contract terms, conditions, and cost/price within a reasonable time.

SECTION 3: ELIGIBILITY INFORMATION

3.A. Eligible Applicants

All responsible sources capable of satisfying the Government's needs may submit a proposal. Historically Black Colleges and Universities (HBCUs), Small Businesses, Small Disadvantaged Businesses and Minority Institutions (MIs) are encouraged to submit proposals and join others in submitting proposals; however, no portion of this announcement will be set aside for these organizations' participation due to the impracticality of reserving discrete or severable areas for exclusive competition among these entities. Other Government Agencies, Federally Funded Research and Development Centers (FFRDCs), University Affiliated Research Centers (UARCs), and

any other similar type of organization that has a special relationship with the Government, that gives them access to privileged and/or proprietary information or access to Government equipment or real property, are not eligible to submit proposals under this BAA or participate as team members under proposals submitted by eligible entities.

Only US organizations or institutions¹ may prime and submit proposals to the GHO BAA. Additionally, at least twenty percent (20%) of the principals of the team (as measured by FTEs) must be from U.S. organization(s) or institution(s). Foreign entities and/or individuals may participate to the extent that such participants comply with any necessary Non-Disclosure Agreements, Security Regulations, Export Control Laws and other governing statutes applicable under the circumstances. Offerors are expected to ensure that the efforts of foreign participants do not either directly or indirectly compromise the laws of the United States, nor its security interests. As such, offerors should carefully consider the roles and responsibilities of foreign participants as they pursue teaming arrangements to propose to the GHO BAA.

3.A.1. Procurement Integrity, Standards of Conduct, Ethical Considerations and Organizational Conflicts of Interest (OCI)

"Organizational conflict of interest" means that because of other activities or relationships with other persons, a person is unable or potentially unable to render impartial assistance or advice to the Government, or the person's objectivity in performing the contract work is or might be otherwise impaired, or a person has an unfair competitive advantage.

If a prospective offeror, or any of its proposed subcontractor teammates, believes that a potential conflict of interest exists or may exist (whether organizational or otherwise), the offeror should promptly raise the issue with IARPA and submit a waiver request by e-mail to the mailbox address for this BAA at dni-iarpa-baa-11-12@ugov.gov. All waiver requests must be submitted through the offeror, regardless of whether the waiver request addresses a potential OCI for the offeror or one of its subcontractor teammates. A potential conflict of interest includes but is not limited to any instance where an offeror, or any of its proposed subcontractor teammates, is providing either scientific, engineering and technical assistance (SETA) or technical consultation to IARPA. In all cases, the offeror shall identify the contract under which the SETA or consultant support is being provided. Without a waiver from the IARPA Director, neither an offeror, nor its proposed subcontractor teammates, can simultaneously provide SETA support or technical consultation to IARPA and compete or perform as a Performer under this solicitation.

All facts relevant to the existence of the potential conflict of interest, real or perceived, should be disclosed in the waiver request. The request should also include a proposed plan to avoid, neutralize or mitigate such conflict. The offeror, or subcontractor teammate as appropriate, shall certify that all information provided is accurate and

¹ "U.S. organization or institution" means any corporation, business association, partnership, trust, academic institution, society or any other entity or group that is incorporated or organized to do business in the United States. It specifically excludes any foreign corporation, business association, partnership, trust, academic institution, society or any other entity or group that is not incorporated or organized to do business in the United States, as well as international organizations, foreign governments and any agency or subdivision of foreign governments

complete, and that all potential conflicts, real or perceived, have been disclosed. It is recommended that an offeror submit this request as soon as possible after release of the BAA before significant time and effort are expended in preparing a proposal. If, in the sole opinion of the Government, after full consideration of the circumstances, the conflict situation cannot be resolved, the request for waiver will be denied, and any proposal submitted by the offeror that includes the conflicted entity will be withdrawn from consideration for award.

As part of their proposal, offerors who have identified any potential conflicts of interest shall include either an approved waiver signed by the IARPA Director or a copy of their waiver request. Otherwise, offerors shall include in their proposal a written certification that neither they nor their subcontractor teammates have any potential conflicts of interest, real or perceived. A sample certification is provided in Appendix D.

If, at any time during the solicitation or award process, IARPA discovers that an offeror has a potential conflict of interest, and no waiver request has been submitted by the offeror, IARPA reserves the right to immediately withdraw the proposal from further consideration for award.

Offerors are strongly encouraged to read “Intelligence Advanced Research Projects Activity’s (IARPA) Approach to Managing Organizational Conflicts of Interest (OCI)”, found on IARPA’s website at http://www.iarpa.gov/IARPA_OCI_081809.pdf.

3.B. US Academic Organizations

According to Executive Order 12333, as amended, paragraph 2.7, “Elements of the Intelligence Community are authorized to enter into contracts or arrangements for the provision of goods or services with private companies or institutions in the United States and need not reveal the sponsorship of such contracts or arrangements for authorized intelligence purposes. Contracts or arrangements with academic institutions may be undertaken only with the consent of appropriate officials of the institution.”

It is highly recommended that offerors submit with their proposal a completed and signed Academic Institution Acknowledgement Letter for each U.S. academic organization that is a part of their team, whether the academic organization is serving in the role of prime, or a subcontractor or consultant at any tier of their team. A template of the Academic Institution Acknowledgement Letter is enclosed in this BAA at Appendix A. It should be noted that an appropriate senior official from the institution, typically the President, Chancellor, Provost, or other appropriately designated official must sign the completed form. Note that this paperwork **must** be received before IARPA can enter into any negotiations with any offeror when a U.S. academic organization is a part of its team.

3.C. Other Eligibility Criteria

3.C.1. Collaboration Efforts

Collaborative efforts and teaming arrangements among potential performers are strongly encouraged. Specific content, communications, networking and team formations are the sole responsibility of the participants.

SECTION 4: APPLICATION AND SUBMISSION INFORMATION

This notice constitutes the total BAA and contains all information required to submit a proposal. No additional forms, kits, or other materials are required.

4.A. Content and Form of Application Submission

4.A.1. Proposal Information

Interested offerors are required to submit full proposals in order to receive consideration for funding. All proposals submitted under the terms and conditions cited in this BAA will be reviewed.

Proposals must be received by the time and date specified in section 4.C.1. in order to be considered during the initial round of selections. IARPA may evaluate proposals received after this date for a period of up to one year from the date of initial posting on FedBizOpps. Selection remains contingent on availability of funds.

The typical proposal should express a consolidated effort in support of one or more related technical concepts or ideas. Disjointed efforts should not be included in a single proposal. Offerors should submit proposals for a Base Period of 15-months.

The Government intends to use employees of Booz Allen Hamilton and their subcontractors to provide expert advice regarding portions of the proposals submitted to the Government. Booz Allen Hamilton will also provide logistical support in carrying out the evaluation process. These personnel will have signed and be subject to the terms and conditions of non-disclosure agreements. By submission of its proposal, an offeror agrees that its proposal information may be disclosed to employees of these organizations for the limited purpose stated above. Offerors who object to this arrangement must provide clear notice of their objection as part of their transmittal letter. If offerors do not include a notice of objection to this arrangement in their transmittal letter, the Government will assume consent to the use of contractor support personnel in assisting the review of submittal(s) under this BAA. Only Government personnel will make evaluation and award determinations under this BAA.

All administrative correspondence and questions regarding this solicitation should be directed by e-mail to dni-iarpa-baa-11-12@ugov.gov. All proposals must be submitted to the address provided in Section 4.C.2. The proposals may **not** be submitted by hand, e-mail or fax; any such proposals received in this manner will be disregarded. See below for proposal submission instructions.

Offerors must submit two hard copies and one soft copy of their proposals: one original hard copy with original signatures; one hard copy with original or copied signatures; and one electronic copy with Volume 1, Volume 2 and any permitted, additional information (.pdf format preferred) on a CD-ROM. Both hard copies and the CD must be clearly labeled with the following information: IARPA-BAA-11-12, the offeror's organization, the proposal title (short title recommended), and copy # of #.

Please note that reviewers receive the electronic copy submitted by CD. Hard copies are primarily for archival purposes. In case of inconsistencies between the hard copy and the electronic copy, the electronic copy takes precedence.

4.A.2. Proposal Format

All proposals must be in the format given below. Nonconforming proposals may be rejected without review. Proposals shall consist of two volumes: "Volume 1 - Technical and Management Proposal" and "Volume 2 - Cost Proposal." All pages shall be printed on 8-1/2 by 11 inch paper with type not smaller than 12 point. Smaller font may be used for figures, tables and charts. The page limitation for full proposals includes all figures, tables, and charts. All pages must be numbered. Unnecessarily elaborate brochures or

presentations beyond what is sufficient to present a complete and effective proposal are not acceptable and will be discarded without review.

4.A.3. Proposal Classification

The Government anticipates that proposals submitted under this BAA will be unclassified. In the event that an offeror chooses to submit a classified proposal or submit any documentation that may be classified, the submissions must be appropriately marked and submitted in accordance with section 6.B.1, below.

4.B. Proposal Content Specifics

Each proposal submitted in response to this BAA shall consist of the following:

Volume 1 – Technical & Management Proposal

- Section 1 – Cover Sheet & Transmittal Letter
- Section 2 – Summary of Proposal
- Section 3 – Detailed Proposal
- Section 4 – Security Plan (if required by proposer's technology)
- Section 5 – Additional Information

Volume 2 – Cost Proposal

- Section 1 – Cover Sheet
- Section 2 – Detailed Estimated Cost Breakdown

4.B.1. Volume 1, Technical and Management Proposal {Limit of 30 pages}

Volume 1, Technical and Management Proposal, may include an attached bibliography of relevant technical papers or research notes (published and unpublished) which document the technical ideas and approach on which the proposal is based. Copies of not more than three relevant papers can be included with the submission. The submission of other supporting materials along with the proposal is strongly discouraged and will not be considered for review. Except for the cover sheet, transmittal letter, table of contents (optional), IP rights tables in the format provided in paragraph 6.B.3, signed Academic Institution Acknowledgement Letter(s) if required, OCI waiver/certification, bibliography, and relevant papers, Volume 1 shall not exceed 30 pages. Any pages exceeding this limit will be removed and not considered during the evaluation process. Full proposals must be accompanied by an official transmittal letter. All full proposals must be written in English.

Section 1: Cover Sheet & Transmittal Letter

A. Cover sheet:

- (1) BAA number: IARPA-BAA-11-12
- (2) Technical area: Power or Propulsion
- (3) Lead organization submitting proposal
- (4) Type of business, selected among the following categories: "LARGE BUSINESS", "SMALL DISADVANTAGED BUSINESS", "OTHER SMALL BUSINESS", "HBCU", "MI", "OTHER EDUCATIONAL", OR "OTHER NONPROFIT"
- (5) Contractor's reference number (if any)
- (6) Other team members (if applicable) and type of business for each
- (7) Proposal title

- (8) Technical point of contact to include: title, first name, last name, street address, city, state, zip code, telephone, fax (if available), electronic mail (if available)
- (9) Administrative point of contact to include: title, first name, last name, street address, city, state, zip code, telephone, fax (if available), electronic mail (if available)
- (10) IP rights have been addressed in accordance with Section 6.B.3? Yes/No
- (11) OCI waiver or waiver request [see Section 3.A.1.] included? Yes/No
- (11a) If no OCI, a written certification must be included (see Appendix D letter template).
- (12) Are one or more U.S. Academic Organizations part of your team? Yes/No
- (12a) If Yes, are you including an Academic Institution Acknowledgement Statement (see Appendix A letter template) with your proposal for each Academic Organization that is part of your team? Yes/No
- (13) Total funds requested from IARPA and the amount of cost share (if any)
- (14) Date proposal was submitted.

[NOTE: See Appendix B for Cover Sheet Template]

B. Official Transmittal Letter.

Section 2: Summary of Proposal

Section 2 shall provide an overview of the proposed work as well as introduce associated technical and management issues. This section shall contain a technical description of and technical approach to the research as well as a succinct portrayal of the uniqueness and benefits of the proposed work. It shall make the technical objectives clear and quantifiable and shall provide a project schedule with definite decision points and endpoints. Offerors must address:

- A. Innovative claims for the proposed research. This section is the centerpiece of the proposal and should succinctly describe the uniqueness and benefits of the proposed approach relative to the state-of-the-art and alternate technologies and approaches.
- B. Summary of the products, transferable technology and deliverables associated with the proposed research results. Measurable deliverables should be defined that show progress toward achieving the stated Program Milestones. Include in this section all proprietary claims to the results, prototypes, intellectual property, or systems supporting and/or necessary for the use of the research, results, and/or prototype. If there are no proprietary claims, this should be stated. Should no proprietary claims be made, Government rights will be unlimited.
- C. Schedules and milestones for the proposed research, including overall estimates of cost for each task. Summarize, in table form, the cost, schedule and milestones for the proposed research, including estimates of cost for each deliverable and total cost. Do not include proprietary information with the milestones.
- D. Overview of the technical approach and plan. Technical rationale, technical approach and constructive plan for accomplishing the technical goals that realize the innovative claims and deliverables. (This section will be supplemented with a more detailed plan in Volume 1, Section 3 of the proposal.)
- E. Related research. General discussion of other research in this area.

F. Project contributors. Offerors must include a clearly defined organizational chart of all anticipated project participants and their roles in the project. Accompanying this chart, offerors will provide brief biographical sketches of key personnel and significant contributors and a detailed description of the roles that contributors (including Principal Investigator(s)) will play based on their qualifications and on their level of effort in each year of the Program. Discussion of the teaming strategy among team members shall be included. If the team intends to use consultants, they must be included in the organizational chart as well. Indicate if the person will be an “individual” or “organizational” consultant (that is, will the consultant represent himself/herself or his/her organization). In both cases, the organizational affiliation should be identified. The consultant should make a written commitment to be available to the team; the commitment should be attached to the Cost Volume. (Interested parties are encouraged to leverage personnel that are dedicated to BAA requirements no less than 25% of their time. If any participant is scheduled for less than 25% of his/her time, the offeror will provide a clear and compelling justification as to how benefit can be gained from that person’s participation at the specified level of effort.)

A chart, such as the following, is suggested.

Participants	Org	Role	Unique, Relevant Capabilities	Specific Task(s) / Contributions	Time Commitment
John Doe	ABC University	PI/Key Personnel	Aerospace Engineer	Program Management	75%
John Doe, Jr.	ABC University	Key Personnel	Aerospace Propulsion Professor	Design Propulsion system	35%
Jane Doe	ABC University	Significant Contributor	Aero-acoustic Professor	Acoustic predictions	50%
Jane Roe	ABC University	Contributor	Aerospace Engineer	Manufacturing project lead	65%
John Doe, III	XYZ Co.	Co-PI/Key Personnel	Propulsion Engineer	Propulsion system testing	25%
Wayne Roe	XYZ Co.	Significant Contributor	Acoustic Engineer	Acoustic measurements	40%
John Doe, IV	XYZ University	Consultant (Individual)	Physics Professor	Systems performance	200 hours

Section 3: Detailed Proposal Information

This section of the proposal shall provide the detailed, in-depth discussion of the proposed research. Specific attention must be given to addressing both the risks and payoffs of the proposed research and why it is desirable for IARPA to pursue. This part shall provide:

A. Statement of Work (SOW) - In plain English, clearly define the technical tasks and sub-tasks to be performed, their durations and the dependencies among them. For each task and sub-task, provide:

- A general description of the objective;
- A detailed description of the approach to be taken, developed in an orderly progression and in enough detail to establish the feasibility of accomplishing the goals of the task;
- Identification of the primary organization responsible for task execution (prime, sub-contractor, team member, etc.) by name;

- The exit criteria for each task/activity, i.e., a product, event or milestone that defines its completion;
- Definition of all deliverables (e.g., data, reports, software, etc.) to be provided to the Government in support of the proposed research tasks/activities.

Note: Do not include any proprietary information in the SOW.

At the end of this section, provide a Gantt chart, showing all the tasks and sub-tasks on the left with the performance period (in quarters) on the right. All milestones should be clearly labeled on the chart.

- B. A detailed description of the objectives, scientific relevance, technical approach and expected significance of the work. The key elements of the proposed work should be clearly identified and related to each other. Proposals should clearly detail the technical method(s) and/or approach(es) that will be used to meet or exceed each program milestone and should provide ample justification as to why the proposed method(s)/approach(es) is/are feasible. Any anticipated risks should be described and possible mitigations proposed. General discussion of the problem without specific detail about the technical implementation will result in an unacceptable rating.
- C. State-of-the-art. Comparison with other on-going research, highlighting the uniqueness of the proposed effort/approach and differences between the proposed effort and the current state-of-the-art clearly stated. Identify the advantages and disadvantages of the proposed work with respect to potential alternative approaches.
- D. Data sources: Identification and description of data sources to be utilized in pursuit of the project research goals. Explain clearly how the data selected will be an appropriate and adequate set for exploring the research topic being proposed.

Offerors proposing to use existing data sets must provide written verification that all data were obtained in accordance with U.S. laws and, where applicable, are in compliance with End User License Agreements, Copyright Laws, Terms of Service, and laws and policies regarding privacy protection of the U.S. Persons.

Offerors proposing to obtain new data sets must ensure that their plan for obtaining the data complies with U.S. laws and where applicable, with End User License Agreements, Copyright Laws, Terms of Service, and laws and policies regarding privacy protection of the U.S. Persons.

It is not expected that the research will involve human subjects. No proposals will be accepted that propose such research.

- E. Description of the deliverables associated with the proposed research results, enhancing that of Volume 1, Section 2: Summary of Proposal. Deliverables should be defined that show progress toward achieving the stated Program Milestones. Deliverables are to include all data, subsystem and component test results, any sound measurements, evaluation analyses and documents (prototype mechanical and electrical design documentation, CAD or design model files, construction drawings, software documentation, methodology documentation, research reports, and publications.) Other deliverables are to include hardware prototypes, research status reports including waypoint results, publications, and data. For all deliverables describe the proposed approach to intellectual property rights, together with supporting rationale of why this approach is in the Government's best interest. This

section should include a list of technical data, computer software or computer software documentation associated with this research effort in which the Government will acquire less than unlimited rights. For all software deliverables, the offeror shall include all as delivered version source code produced in the course of software development. These deliverables must include source code and the appropriate scripting, subordinate libraries, release notes, and other necessary components, data, and documentation. These and all other deliverables developed as part of the IARPA GH0 Program shall be delivered prior to the end of the contract Period of Performance. The Government desires Government Purpose Rights for all deliverables, anything less will be considered a significant weakness in the proposal. Offerors must describe their proposed approach to intellectual property consistent with Section 6.B.3 (Intellectual Property).

- F. Cost, schedule, milestones. Cost, schedule, and milestones for the proposed research, including estimates of cost for each deliverable delineated by the primes and major sub-contractors, total cost, and company cost share, if any. Where the effort consists of multiple portions that could reasonably be partitioned for purposes of funding, these should be identified as options with separate cost estimates for each. The milestones must not include proprietary information.
- G. Offeror's previous accomplishments. Discuss previous accomplishments and work in this or closely related research areas and how these will contribute to and influence the current work.
- H. Facilities. Describe the facilities that will be used for the proposed effort, including computational and experimental resources.
- I. Detailed Management Plan. The Management Plan should identify both the organizations and the individuals within those organizations that make up the team and delineate the expected duties, relevant capabilities and task responsibilities of team members and expected relationships among team members. Expected levels of effort (percentage time or fraction of an FTE) for all key personnel and significant contributors should be clearly noted. A description of the technical, administrative and business structure of the team and the internal communications plan should be included. Project/function/sub-contractor relationships (including formal teaming agreements), Government research interfaces, and planning, scheduling, and control practices should be described. The team leadership structure should be clearly defined. Provide a brief biography of the key personnel (including alternates, if desired) who will be involved in the research along with the amount of effort to be expended by each person during the year. Participation by key personnel and significant contributors is expected to exceed 25% of their time. A compelling explanation of any variation from this figure is required.
- J. Resource Share. Include the type of support, if any, the offeror might request from the Government, such as facilities, equipment or materials, or any such resources the offeror is willing to provide at no additional cost to the Government to support the research effort.
- K. Other Funding. The names of other federal, state or local agencies or other parties receiving the proposal and/or funding the proposed effort. If none, so state.

Section 4: Additional Information

A brief bibliography of relevant technical papers and research notes (published and unpublished) which document the technical ideas on which the proposal is based. Copies of not more than three (3) relevant papers may be included in the submission. This information does not contribute to the page count of Volume 1.

4.B.2. Volume 2: Cost Proposal (No Page Limit)

SECTION 1: COVER SHEET

- 1) BAA number: IARPA-BAA-11-12
- 2) Technical area: Power or Propulsion
- 3) Lead organization submitting proposal
- 4) Type of business, selected among the following categories: "LARGE BUSINESS", "SMALL DISADVANTAGED BUSINESS", "OTHER SMALL BUSINESS", "HBCU", "MI", "OTHER EDUCATIONAL", OR "OTHER NONPROFIT"
- 5) Contractor's reference number (if any)
- 6) Other team members (if applicable) and type of business for each
- 7) Proposal title
- 8) Technical point of contact to include: title, first name, last name, street address, city, state, zip code, telephone, fax (if available), electronic mail (if available)
- 9) Administrative point of contact to include: title, first name, last name, street address, city, state, zip code, telephone, fax (if available), and electronic mail (if available)
- 10) Award instrument requested: cost-plus-fixed-fee (CPFF) or cost-contract—no fee.
- 11) Place(s) and period(s) of performance
- 12) Total proposed cost separated by basic award and option(s) (if any)
- 13) Name, address, telephone number of the offeror's Defense Contract Management Agency (DCMA) administration office or equivalent cognizant contract administration entity, if known
- 14) Name, address, telephone number of the offeror's Defense Contract Audit Agency (DCAA) audit office or equivalent cognizant contract audit entity, if known
- 15) Date proposal was prepared
- 16) DUNS number
- 17) TIN number
- 18) Cage Code
- 19) Proposal validity period [minimum of 180 days]

[NOTE: See Appendix C for Cover Sheet Template]

SECTION 2: DETAILED ESTIMATED COST BREAKDOWN

- 1) Total cost broken down by major cost items (direct labor, including labor categories; sub-contracts; materials; other direct costs, overhead charges, etc.) and further broken down by major task and phase
- 2) Major program tasks by fiscal year
- 3) An itemization of major subcontracts and equipment purchases

- 4) An itemization of any information technology (IT²) purchase
- 5) A summary of projected funding requirements by month
- 6) The source, nature and amount of any industry cost-sharing
- 7) Identification of pricing assumptions of which may require incorporation into the resulting award instrument (e.g., use of Government Furnished Property/Facilities/Information, access to Government Subject Matter Expert/s, etc.).

The prime contractor is responsible for compiling and providing all subcontractor proposals. All subcontractor proposals shall also include the above listed cost breakdown. If any subcontractor does not wish to provide their direct and/or indirect rates to the prime contractor, their proposal may contain burdened rates; however, a copy of the proposal showing their unburdened rates shall be contained in the offeror's proposal as a sealed package to the Government. Subcontractor proposals should include Interdivisional Work Transfer Agreements or similar arrangements. Where the effort consists of multiple portions which could reasonably be partitioned for purposes of funding, these should be identified as options with separate cost estimates for each. NOTE: For IT and equipment purchases, include a letter stating why the offeror cannot provide the requested resources from its own funding.

Supporting cost and pricing information must be provided in sufficient detail to substantiate the summary cost estimates in Volume 1 above. Include a description of the method used to estimate costs and supporting documentation. *Key personnel must be listed by name for the prime and all subcontractors.* Note: "cost or pricing data" shall be required if the offeror is seeking a procurement contract award of \$700,000 or greater unless the offeror requests an exception from the requirement to submit cost or pricing data. All proprietary subcontractor proposal documentation, prepared at the same level of detail as that required of the prime, shall be made immediately available to the Government, upon request, under separate cover (i.e., mail, electronic/email, etc.), either by the offeror or by the subcontractor organization.

Consultant letter(s) of commitment should be attached to the Cost Volume and estimated costs should be included in the cost estimates.

²IT is defined as "any equipment, or interconnected system(s) or subsystem(s) of equipment that is used in the automatic acquisition, storage, manipulation, management, movement, control, display, switching, interchange, transmission, or reception of data or information by the agency. (a) For purposes of this definition, equipment is used by an agency if the equipment is used by the agency directly or is used by a contractor under a contract with the agency which – (1) Requires the use of such equipment; or (2) Requires the use, to a significant extent, of such equipment in the performance of a service or the furnishing of a product. (b) The term "information technology" includes computers, ancillary, software, firmware and similar procedures, services (including support services), and related resources. (c) The term "information technology" does not include – (1) Any equipment that is acquired by a contractor incidental to a contract; or (2) Any equipment that contains imbedded information technology that is used as an integral part of the product, but the principal function of which is not the acquisition, storage, manipulation, management, movement, control, display, switching, interchange, transmission, or reception of data or information. For example, HVAC (heating, ventilation, and air conditioning) equipment, such as thermostats or temperature control devices, and medical equipment where information technology is integral to its operation, is not information technology."

4.C. Submission Details

4.C.1. Due Dates

Proposals must be received by or before 5:00 p.m. EDT time on November 22, 2011 in order to be considered during the initial round of selections.

4.C.2. Proposal Delivery

The full proposal (one original hard copy with original signatures; one hard copy with original or copied signatures; and 1 electronic copy with Volume 1, Volume 2 and any permitted, additional information (.pdf format preferred) on a CD-ROM) must be delivered to:

ODNI/IARPA
Attention: Sam Wilson
Telephone Number: 301-851-7488
Gate 5
1000 Colonial Farm Road
McLean, VA 22101

IMPORTANT: Deliveries must be made using one of the following commercial delivery services: UPS, FedEx or DHL; NOT United States Postal Service (USPS). Failure to use one of these methods may jeopardize or delay delivery of proposals. Note that under certain “same day delivery” options, UPS, FedEx and DHL may subcontract out their services to local delivery companies. These smaller local delivery companies will not be allowed access to this address to make deliveries. Offerors are cautioned that they assume the risk of untimely delivery of their proposal if they use one of these “same day delivery” options. Deliveries by hand, e-mail or fax will not be accepted.

Offerors must ensure the timely delivery of their proposals. The mail facility closes at 5 p.m. EDT time; delivery cannot take place after this time until the following day. IARPA will generally acknowledge receipt of complete submissions via e-mail within 24-48 hours and assign control numbers that should be used in all further correspondence regarding proposals. To be certain of delivery, however, it is suggested that a tracking number be obtained from the carrier.

Proposals must be received by the time and date specified in the BAA in order to be considered during the initial round of selections. IARPA may evaluate proposals received after this date for a period up to one year from the date of initial posting on FedBizOpps. Selection remains contingent on availability of funds. Failure to comply with the submission procedures may result in the submission not being evaluated.

4.D. Funding Restrictions

Facility construction costs are not allowable under this activity. Travel should be limited to mandatory site visits and Program meetings. Funding may not be used to pay for commercialization of technology.

Section 5: APPLICATION REVIEW INFORMATION

5.A. Evaluation Criteria

The criteria to be used to evaluate and select proposals for this Program BAA are described in the following paragraphs. Because there is no common statement of work, each proposal will be evaluated on its own merits and its relevance to the Program goals

rather than against other proposals responding to this BAA. Specifics about the evaluation criteria are provided below, in descending order of importance.

5.A.1. Overall Scientific and Technical Merit

Overall scientific and technical merit of the proposal is substantiated, including unique and innovative methods, approaches, and/or concepts. The offeror clearly articulates an understanding of the problem to be solved. The technical approach is credible, and includes a clear assessment of primary risks and a means to address them. The Offeror can expect the selection process to include an assessment of the proposal against the state-of-the-art.

5.A.2. Effectiveness of Proposed Work Plan

The feasibility and likelihood that the proposed approach will satisfy the Program's milestones and metrics are explicitly described and clearly substantiated along with risk mitigation strategies for achieving stated milestones and metrics. The proposal reflects a mature and quantitative understanding of the Program milestones and metrics, and the statistical confidence with which they may be measured. All offeror-proposed waypoints and metrics are clear and well-defined, with a logical connection to enabling offeror decisions and/or Government decisions. The schedule to achieve the waypoints and milestones is realistic and reasonable.

The role and relationships of prime and sub-contractors is clearly delineated with all participants fully documented. Work plans demonstrate the ability to provide full Government visibility into and interaction with key technical activities and personnel; and a single point of responsibility for contract performance. Work plans must also demonstrate that key personnel have sufficient time committed to the Program to accomplish their described Program roles.

The requirement for and the anticipated use or integration of Government Furnished Property (GFP) including all equipment, facilities, information, etc., is fully described including dates when such GFP, GFE (Government Furnished Equipment), GFI (Government Furnished Information) or other similar Government-provided resources will be required.

The offeror's proposed intellectual property and data rights are consistent with the Government's need to be able to communicate Program information across Government organizations and to support transition of the Program results to Intelligence Community users at a reasonable cost.

5.A.3. Contribution and Relevance to the IARPA Mission and Program Goals

The proposed solution meets the letter and intent of the stated program goals and all elements within the proposal exhibit a comprehensive understanding of the problem. The offeror clearly addresses how the proposed effort will meet and progressively demonstrate the GHO Program goals. The offeror describes how the proposed solution contributes to IARPA's mission to invest in high-risk/high-payoff research that can provide the U.S. with an overwhelming intelligence advantage over its future adversaries. The proposed approach to intellectual property rights is in the Government's best interest.

5.A.4. Relevant Experience and Expertise

The offeror's capabilities, related experience, facilities, techniques, or unique combination of these which are integral factors for achieving the proposal's objectives

will be evaluated, as well as qualifications, capabilities, and experience of the proposed principal investigator, team leader, and key personnel critical in achieving the proposal objectives. Time commitments of key personnel must be sufficient for their proposed responsibilities in the effort.

5.A.5. Cost Realism

The proposed costs are reasonable and realistic for the work proposed. Estimates are "realistic" when they are neither excessive nor insufficient for the effort to be accomplished. The proposal documents all anticipated costs including those of associate, participating organizations. The proposal demonstrates that the respondent has fully analyzed budget requirements and addressed resulting cost risks. Other sponsors who have funded or are funding this offeror for the same or similar efforts are identified. The Government shall evaluate how well all cost data are traceable and reconcilable.

IARPA recognizes that undue emphasis on cost may motivate Offerors to offer low-risk ideas with minimum uncertainty and to staff the effort with junior personnel in order to be in a more competitive posture. IARPA discourages such cost strategies. Cost reduction approaches that will be received favorably include innovative management concepts that maximize direct funding for technology and limit diversion of funds into overhead.

Equipment, software, and data collection expenses must be well justified, and will be a consideration in cost realism.

Proposed travel, especially foreign travel, must be well justified and required for successful execution of the proposed work.

After selection and before award, the Contracting Officer will negotiate cost/price reasonableness.

Note to offerors regarding the above evaluation criteria: Award(s) will be made to offerors on the basis of the evaluation criteria listed in Section 5.A (Evaluation Criteria), Program balance and availability of funds. Award recommendations will not be made to offeror(s) whose proposal(s) are determined to be not selectable.

5.B. Review and Selection Process

It is the policy of IARPA to ensure impartial, equitable, comprehensive proposal evaluations and to select the source (or sources) whose offer meets the Government's technical, policy and programmatic goals. In order to provide the desired evaluation, qualified Government personnel will conduct reviews and (if necessary) convene panels of experts in the appropriate areas.

Proposals will only be evaluated against the criteria described under Section 5.A above, and will not be evaluated against other proposals since they are not submitted in accordance with a common work statement. For evaluation purposes, a proposal is the document described in Section 4.A. Other supporting or background materials submitted with the proposal will be considered for the reviewer's convenience only and not considered as part of the proposal.

5.C. Proposal Retention

It is the policy of IARPA to treat all proposals as competitive information and to disclose their contents only for the purpose of evaluation. Proposals will not be returned. Upon completion of the source selection process, the original of each proposal received will be

retained at IARPA and all other non-required copies will be destroyed. A certification of destruction may be requested, provided that the formal request is sent to IARPA via e-mail within 5 days after notification of proposal results.

Section 6: AWARD ADMINISTRATION INFORMATION

6.A. Award Notices

As soon as the evaluation of a proposal is complete, the offeror will be notified that: 1) the proposal has been selected for funding pending contract negotiations, or, 2) the proposal has not been selected.

6.B. Administrative and National Policy Requirements

6.B.1. Security

The Government anticipates that proposals submitted under this BAA will be unclassified. Offerors choosing to submit a classified proposal must first receive permission from the Original Classification Authority to use their information in replying to this BAA. Applicable classification guide(s) should be submitted to ensure that the proposal is protected appropriately.

Offerors choosing to submit a classified proposal are reminded that the proposal deadline remains the same regardless of whether the offeror's proposal, in whole or in part, is classified. Additional processing time may be required if all or part of a submission is classified. In the event that an offeror chooses to submit a classified proposal or submit any documentation that may be classified, the following information is applicable.

Collateral Classified Information: Use classification and marking guidance provided by previously issued security classification guides and the National Industrial Security Program Operating Manual (DoD 5220.22-M) when marking and transmitting information previously classified by another original classification authority. Classified information at the Confidential and Secret level may only be mailed via U.S. Postal Service (USPS) First Class Registered Mail or U.S. Postal Service Express Mail. All classified information will be enclosed in opaque inner and outer covers and double wrapped. The inner envelope shall be sealed and plainly marked with the assigned classification and addresses of both sender and addressee. The inner envelope shall be addressed to:

TO BE OPENED BY
IARPA Security Office
ATTN: IARPA-BAA-11-12

The outer envelope shall be sealed with no identification as to the classification of its contents and addressed to:

IARPA/MS2 Building
Office of the Director of National Intelligence (ODNI)
Washington, DC 20511

Information Above Collateral Secret Level: For submissions above the Collateral Secret level, contact the IARPA Security Office at 301-851-7580 for further guidance and instructions prior to transmitting information to IARPA.

Offerors must have existing and in-place prior to execution of an award, approved capabilities (personnel and facilities) to perform research and development at the classification level they propose.

Security classification guidance will not be provided at this time since IARPA is soliciting ideas only. After reviewing the incoming proposals, if a determination is made that the award instrument may result in access to classified information, a security classification guide will be issued and attached as part of the award.

6.B.2 Proprietary Data

It is the policy of IARPA to treat all proposals as competitive information, and to disclose their contents only for the purpose of evaluation.

All proposals containing proprietary data should have the cover page and each page containing proprietary data clearly marked as containing proprietary data. It is the offeror's responsibility to clearly define to the Government what is considered proprietary data.

Performers may use their own data for development purposes as long as they follow the guidelines in 6.B.13 Lawful Use and Privacy Protection Measures.

6.B.3 Intellectual Property

6.B.3.a. Procurement Contract Offerors

6.B.3.a.1. Noncommercial Items (Technical Data and Computer Software)

Offerors responding to this BAA requesting a procurement contract to be issued under the FAR shall identify all noncommercial technical data and noncommercial computer software that it plans to generate, develop and/or deliver under any proposed award instrument in which the Government will acquire less than unlimited rights and to assert specific restrictions on those deliverables. In the event that offerors do not submit such information, the Government will assume that it automatically has "unlimited rights" to all noncommercial technical data and noncommercial computer software generated, developed, and/or delivered under any award instrument, unless it is substantiated that development of the noncommercial technical data and noncommercial computer software occurred with mixed funding. If mixed funding is anticipated in the development of noncommercial technical data and noncommercial computer software generated, developed and/or delivered under any award instrument, then offerors should identify the data and software in question as subject to Government Purpose Rights (GPR).³ The

³ "Government purpose rights" means the rights to use, modify, reproduce, release, perform, display, or disclose technical data and computer software within the Government without restriction; and to release or disclose technical data and computer software outside the Government and authorize persons to whom release or disclosure has been made to use, modify, reproduce, release, perform, display, or disclose that data or software for any United States Government purpose. United States Government purposes include any activity in which the United States Government is a party, including cooperative agreements with international or multi-national defense organizations, or sales or transfers by the United States Government to foreign governments or international organizations. Government purposes include competitive procurement, but do not include the rights to use, modify, reproduce, release, perform, display, or disclose technical data or computer software for commercial purposes or authorize others to do so.

Government will automatically assume that any such GPR restriction is limited to a period of five (5) years, at which time the Government will acquire “unlimited rights” unless the parties agree otherwise. Offerors are advised that the Government will use this information during the source selection evaluation process to evaluate the impact of any identified restrictions and may request additional information from the offeror, as may be necessary, to evaluate the offeror’s assertions. If no restrictions are intended, then the offeror should state “NONE.”

A sample list for complying with this request is as follows:

NONCOMMERCIAL ITEMS			
Technical Data, Computer Software To be Furnished With Restrictions	Basis for Assertion	Asserted Rights Category	Name of Person Asserting Restrictions
(LIST)	(LIST)	(LIST)	(LIST)

6.B.3.a.2. Commercial Items (Technical Data and Computer Software)

Offerors responding to this BAA requesting a procurement contract to be issued under the FAR shall identify all commercial technical data and commercial computer software that may be embedded in any noncommercial deliverables contemplated under the research effort, along with any applicable restrictions on the Government’s use of such commercial technical data and/or commercial computer software. In the event that offerors do not submit the list, the Government will assume that there are no restrictions on the Government’s use of such commercial items. The Government may use the list during the source selection evaluation process to evaluate the impact of any identified restrictions and may request additional information from the offeror, as may be necessary, to evaluate the offeror’s assertions. If no restrictions are intended, then the offeror should state “NONE.”

A sample list for complying with this request is as follows:

COMMERCIAL ITEMS			
Technical Data, Computer Software To be Furnished With Restrictions	Basis for Assertion	Asserted Rights Category	Name of Person Asserting Restrictions
(LIST)	(LIST)	(LIST)	(LIST)

6.B.3.b. All Offerors – Patents

Include documentation proving ownership of or possession of appropriate licensing rights to all patented inventions (or inventions for which a patent application has been filed) that will be utilized under the proposal for the IARPA program. If a patent application has been filed for an invention that the proposal utilizes, but the application has not yet been made publicly available and contains proprietary information, the offeror may provide only the patent number, inventor name(s), assignee names (if any), filing date, filing date of any related provisional application, and a summary of the patent title, together with either: 1) a representation that the offeror owns the invention, or 2) proof of possession of appropriate licensing rights in the invention.

6.B.3.c. All Offerors – Intellectual Property Representations

All offerors shall provide a good faith representation that you either own or possess appropriate licensing rights to all other intellectual property that will be utilized under your proposal for the IARPA program. Additionally, offerors shall provide a short summary for each item asserted with less than unlimited rights that describes the nature of the restriction and the intended use of the intellectual property in the conduct of the proposed research.

6.B.4. Meeting and Travel Requirements

Performers are expected to assume responsibility for administration of their projects and to comply with contractual and Program requirements for reporting, attendance at Program Technical Interchange Meetings (TIMs) and availability for site visits.

6.B.4.a. Technical Interchange Meetings

The GHO Program intends to hold a Program-level Kick-Off meeting during the first month of the Program and then hold Program-level TIMs twice during the 15-month long period of performance (scheduled by the program office). These 2 day TIMs will focus on technical aspects of the Program and on facilitating open technical exchanges, interaction and sharing among the various Program participants. Program participants will be expected to present the technical status and progress of their projects as well as to demonstrate their technical capabilities to other participants and invited guests at these events. For costing purposes, the offeror should expect one TIM in the Washington, D.C., area and the other outside the Washington, D.C. area.

6.B.4.b. Site Visits

Site visits by the Contracting Officer Representative and the GHO Program Management staff will generally take place twice during Phase 1 of the Program and will occur during the period between Program-level TIMs. These visits will occur at the Contractor's facility. Reports on technical progress, details of successes and issues, contributions to the Program goals and technology demonstrations will be expected at such visits.

6.B.5. Human Use

No research proposals involving human subjects will be accepted under this BAA.

6.B.6. Publication Approval

Pre-publication approval for research information associated with IARPA may be required if it is determined that the release of such information may result in the disclosure of sensitive information. Any award resulting after such a determination may include a requirement to obtain the permission of IARPA and the Contracting Agent before publishing any information on the research. If an award is made without such a requirement, a courtesy soft copy of any work submitted for publication must be provided to the IARPA Program Manager and the Contracting Officer Representative (COR.)

6.B.7. Export Control

The offeror shall comply with all U.S. export control laws and regulations, including the International Traffic in Arms Regulations (ITAR), 22 CFR Parts 120 through 130, and the Export Administration Regulations (EAR), 15 CFR Parts 730 through 799, in the performance of this contract. In the absence of available license exemptions/exceptions, the offeror shall be responsible for obtaining the appropriate licenses or other approvals,

if required, for exports of (including deemed exports) hardware, technical data, and software, or for the provision of technical assistance.

The offeror shall be responsible for obtaining export licenses, if required, before utilizing foreign persons in the performance of this contract, including instances where the work is to be performed on-site at any Government installation (whether in or outside the United States), where the foreign person will have access to export-controlled technologies, including technical data or software.

The offeror shall be responsible for all regulatory record keeping requirements associated with the use of licenses and license exemptions/exceptions. The offeror shall appropriately mark all contract deliverables controlled by ITAR and/or EAR. The offeror shall be responsible for ensuring that the provisions of this clause apply to its sub-contractors. The offeror will certify knowledge of and intended adherence to these requirements in the representations and certifications of the contract.

6.B.8. Subcontracting

It is the policy of the Government to enable small business and small disadvantaged business concerns to be considered fairly as sub-contractors to contractors performing work or rendering services as prime contractors or sub-contractors under Government contracts and to assure that prime contractors and sub-contractors carry out this policy. Each offeror that submits a proposal that includes sub-contractors; is selected for funding (pending negotiations); and has proposed a funding level above the maximum cited in the FAR, may be asked to submit a sub-contracting plan before award, in accordance with FAR 19.702(a) (1) and (2). The plan format is outlined in FAR 19.704. Offerors must declare teaming relationships in their proposals and must specify the type of teaming arrangement in place, including any exclusive teaming arrangements. IARPA neither promotes, nor discourages the establishment of exclusive teaming agreements within offeror teams. Individuals or organizations associated with multiple teams must take care not to over-commit those resources being applied.

6.B.9. Reporting

Fiscal and management responsibility are important to the GHO Program. Although the number and types of reports will be specified in the award document, all performers will, at a minimum, provide the Contracting Office, Contracting Officer Representative and the GHO Program Manager with monthly technical reports and monthly financial reports. The reports shall be prepared and submitted in accordance with the procedures contained in the award document and mutually agreed upon before award. Technical reports will describe technical highlights and accomplishments, priorities and plans, issues and concerns; will provide evaluation results; and will detail future plans. Financial reports will present an on-going financial profile of the project, including total project funding, funds invoiced, funds received, funds expended during the preceding month and planned expenditures over the remaining period. Additional reports and briefing material may also be required, as appropriate, to document progress in accomplishing program metrics.

Performers will prepare a final report of their work at the conclusion of the performance period of the award (even if the research may continue under a follow-on vehicle). The final report will be delivered to the Contracting Agent, Contracting Officer Representative and the GHO Program Manager. The report will include:

- Problem definition

- Findings and approach
- System design and solution
- Possible generalization(s)
- Anticipated path ahead.

6.B.10. Central Contractor Registration (CCR)

Selected offerors not already registered in the Central Contractor Registry (CCR) may be required to register in CCR prior to any award under this BAA. Information on CCR registration is available at <http://www.ccr.gov>.

6.B.11. Representations and Certifications for Contract Awards

Prospective offerors may be required to complete electronic representations and certifications at <http://orca.bpn.gov>. Successful offerors will be required to complete additional representations and certifications prior to award.

Certifications and representations shall be completed by successful offerors prior to award. Federal Acquisition Regulation (FAR) Online Representations and Certifications Application (ORCA) is at website <http://orca.bpn.gov>. Defense FAR Supplement and contract specific certification packages will be provided to the contractor for completion prior to award.

6.B.12. Wide Area Work Flow (WAWF)

Unless using another approved electronic invoicing system, performers will be required to submit invoices for payment directly via the Internet/WAWF at <http://wawf.eb.mil>. Registration to WAWF will be required prior to any award under this BAA.

6.B.13. Lawful Use and Privacy Protection Measures

All data gathered by performers and researchers must be obtained in accordance with U.S. laws and in compliance with the End User License Agreement, Copyright Laws, Terms of Service, and laws and policies regarding privacy protection of U.S. Persons. Before using such data, the performer must provide proof that the data was acquired in accordance with U.S. laws and regulations.

Section 7: AGENCY CONTACTS

Administrative, technical or contractual questions concerning this BAA should be sent via e-mail to dni-iarpa-baa-11-12@ugov.gov. If e-mail is not available, fax questions to 301-851-7673, Attention: IARPA-BAA-11-12. All requests must include the name, email address (if available), and phone number of a point of contact for the requested information. Do not send questions with proprietary content. IARPA will accept questions about the BAA until November 4, 2011. A consolidated Question and Answer response will be periodically posted on the IARPA website (www.IARPA.gov); no answers will go directly to the submitter.

Points of Contact: The technical POC for this effort is:

Sam Wilson, IARPA, Smart Collection
ATTN: IARPA-BAA-11-12
Office of the Director of National Intelligence
Intelligence Advanced Research Projects Activity (IARPA)
Washington, DC 20511
Fax: (301) 851-7673
E-mail: dni-iarpa-baa-11-12@ugov.gov

All emails must have the BAA number (IARPA-BAA-11-12) in the Subject Line.

APPENDIX A

Letter Template

For

Academic Institution Acknowledgement Letter Template

IARPA Broad Agency Announcement (BAA)

GHO Program

IARPA-BAA-11-12

-- Please Place on Official Letterhead --

<insert date>

To: Mr. Thomas Kelso
Chief Acquisition Officer
ODNI/IARPA
Office of the Director of National Intelligence
Washington, D.C. 20511

Subject: Academic Institution Acknowledgement Letter

Reference: Executive Order 12333, As Amended, Para 2.7

This letter is to acknowledge that the undersigned is the responsible official of <insert name of the academic institution>, authorized to approve the contractual relationship in support of the Office of the Director of National Intelligence's Intelligence Advanced Research Projects Activity and this academic institution.

The undersigned further acknowledges that he/she is aware of the Intelligence Advanced Research Projects Activity's proposed contractual relationship with <insert name of institution> through IARPA-BAA-11-12 and is hereby approved by the undersigned official, serving as the president, vice-president, chancellor, vice-chancellor, or provost of the institution.

<Name>

Date

<Position>

APPENDIX B

SAMPLE COVER SHEET

For

VOLUME 1: Technical/Management Details

IARPA Broad Agency Announcement (BAA)

GHO Program

IARPA-BAA-11-12

1) BAA Number	IARPA-BAA-11-12
2) Technical Area (Power or Propulsion)	
3) Lead Organization Submitting Proposal	
4) Type of Business, Selected Among the Following Categories: "Large Business", "Small Disadvantaged Business", "Other Small Business", "HBCU", "MI", "Other Educational", or "Other Nonprofit"	
5) Contractor's Reference Number (if any)	
6) Other Team Members (if applicable) and Type of Business for Each	
7) Proposal Title	
8) Technical Point of Contact to Include: Title, First Name, Last Name, Street Address, City, State, Zip Code, Telephone, Fax (if available), Electronic Mail (if available)	
9) Administrative Point of Contact to Include: Title, First Name, Last Name, Street Address, City, State, Zip Code, Telephone, Fax (if available), Electronic Mail (if available)	
10) Intellectual property rights addressed in accordance with Section 6.B.3?	Yes/No
11) OCI Waiver or Waiver Request [see Section 3.A.1] Included?	Yes/No
11a) If No, is written certification included?	
12) Are one or more U.S. Academic Organizations part of your team?	Yes/No
12a) If Yes, are you including an Academic Institution Acknowledgement Statement with your proposal for each Academic Organization that is part of your team?	Yes/No
13) Total Funds Requested from IARPA and the Amount of Cost Share (if any)	\$
14) Date Proposal as Submitted.	

APPENDIX C

SAMPLE COVER SHEET

for

VOLUME 2: Cost Proposal

IARPA Broad Agency Announcement (BAA)

GHO Program

IARPA-BAA-11-12

1) BAA Number	
2) Technical Area (Power or Propulsion)	IARPA-BAA-11-12
3) Lead organization submitting proposal	
4) Type of Business, Selected Among the Following Categories: "Large Business", "Small Disadvantaged Business", "Other Small Business", "HBCU", "MI", "Other Educational", or "Other Nonprofit"	
5) Contractor's Reference Number (if any)	
6) Other Team Members (if applicable) and Type of Business for Each	
7) Proposal Title	
8) Technical Point of Contact to Include: Title, First Name, Last Name, Street Address, City, State, Zip Code, Telephone, Fax (if available), Electronic Mail (if available)	
9) Administrative Point of Contact to Include: Title, First Name, Last Name, Street Address, City, State, Zip Code, Telephone, Fax (if available), Electronic Mail (if available)	
10) Award Instrument Requested: Cost-Plus-Fixed-Fee (CPFF), Cost-Contract—No Fee, Cost Sharing Contract – No Fee	
11) Place(s) and Period(s) of Performance	
12) Total Proposed Cost Separated by Basic Award and Option(s) (if any)	
13) Name, Address, Telephone Number of the Offeror's Defense Contract Management Agency (DCMA) Administration Office or Equivalent Cognizant Contract Administration Entity, if Known	
14) Name, Address, Telephone Number of the Offeror's Defense Contract Audit Agency (DCAA) Audit Office or Equivalent Cognizant Contract Audit Entity, if Known	
15) Date Proposal was Prepared	
16) DUNS Number	
17) TIN Number	
18) Cage Code	
19) Proposal Validity Period [minimum of 180 days]	

APPENDIX D

Letter Template

For

Organizational Conflicts of Interest Certification Letter Template

IARPA Broad Agency Announcement (BAA)

GHO Program

IARPA-BAA-11-12

(Month DD, YYYY)

Office of the Director of National Intelligence
Intelligence Advanced Research Projects Activity (IARPA)
Smart Collection
ATTN: Sam Wilson
Washington, DC 20511

Subject: OCI Certification

Reference: GHO IARPA-BAA-11-12, (Insert assigned proposal ID#, if received)

Dear Sam Wilson,

In accordance with IARPA Broad Agency Announcement IARPA-BAA-11-12, Section 3.A.1, *Procurement Integrity, Standards of Conduct, Ethical Considerations, and Organizational Conflicts of Interest (OCI)*, and on behalf of _____ (offeror name) I certify that neither _____ (offeror name), **nor any of our subcontractor teammates** has as a potential conflict of interest, real or perceived, as it pertains to the GHO Program.

If you have any questions, or need any additional information, please contact (Insert name of contact) at (Insert phone number) or (Insert e-mail address).

Sincerely,

(Insert organization name)

(Must be signed by an official that has the authority to bind the organization)

(Insert signature)

(Insert name of signatory)
(Insert title of signatory)